



South Coast Air Quality Management District

Engineering & Compliance

*Policies &
Procedures*

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

MEMORANDUM

DATE: June 19, 1985
TO: All Engineers
FROM: Sanford M. Weiss, Director of Engineering /s/ SMW
SUBJECT: Emission Calculation for Standby IC Engines

The following procedure should be used in calculating emissions reported on the AEIS and Regulation XIII Data Sheets for emergency standby internal combustion engines.

AEIS SHEET

Use the actual amount of fuel burned during the testing period with the appropriate emission factors to calculate emissions for the AEIS sheet (with P/O). For 'Weeks operated per year' enter the number of weeks the equipment is tested in a year. (If the engine is tested once a week, every week, enter 52 wk/yr.)

REG XIII DATA SHEET

Emission values should be entered in the Reg 13 Exempt section of the form. To calculate maximum emissions, use the maximum rated equipment capacity and the maximum hours per day the applicant would operate the engine in times of power outages. For the actual emissions determine the amount of fuel expected to be burned during a power outage.

Regulation XIII exempts emergency standby electrical generation equipment in Rule 1304(a)(4). Standby equipment is defined as equipment operating less than 200 hours per year.

EXAMPLE:

Diesel engine with the following specifications:

Maximum fuel consumption (Mfg. data) = 50 gal/hr #2 diesel

Testing is done at full capacity

Normal power would require the engine to be run at 80% capacity

Operating schedule (testing) = 1 hr/day, 1 day/week, 52 weeks/yr
(electricity required) = 16 hr/day, 5 days/week, 52 weeks/yr

Emission factors from Form B-2 (Annual Emission Fees) for diesel oil

lb/1000 gal

ROG	37.5
Methane	0
NO _x	469
SO _x	31.2
CO	102
Part.	33.5

AEIS SHEET

ROG = (50 gal/hr)(0.0375 #/gal) = 1.9 #/hr
NO_x = (")(0.469 #/gal) = 23 #/hr
SO_x = (")(0.0312 #/gal) = 1.6 #/hr
CO = (")(0.210 #/gal) = 11 #/hr
TSP = (")(0.0335 #/gal) = 1.7 #/hr

Note: If the applicant has individual meters or some other means to measure the actual amount of fuel burned during testing, use that value; if not available, use the maximum rating or percent of rating if not tested at full capacity.

REG XIII DATA SHEET

Maximum

ROG = (50 gal/hr)(16 hr/day)(0.0375 #/gal)(1.1) = 33 #/day
NO_x = (")(")(0.469 #/gal)(1.1) = 413 #/day
SO_x = (")(")(0.0312 #/gal)(1.1) = 27 #/day
CO = (")(")(0.210 #/gal)(1.1) = 185 #/day
TSP = (")(")(0.0335 #/gal)(1.1) = 29 #/day

Actual

At 80% capacity, assume the engine would burn 80% of the maximum
50 gal/hr * 0.80 = 40 gal/hr

ROG = (40 gal/hr)(16 hr/day)(0.0375 #/gal) = 24 #/day
NO_x = (")(")(0.469 #/gal) = 300 #/day
SO_x = (")(")(0.0312 #/gal) = 20 #/day
CO = (")(")(0.210 #/gal) = 134 #/day
TSP = (")(")(0.0335 #/gal) = 21 #/day